

Department of Science and Agriculture

BARBADOS.

**AGRICULTURAL
JOURNAL**

Vol. 5, No. 3.

July, 1936.

ADVOCATE CO., LTD.,—Printers & Bookbinders to the Government of Barbados.

Department of Science and Agriculture

BARBADOS.



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THE YIELD OF SUGAR CANE IN BARBADOS IN 1936.

For the past seven seasons a number of plantations have co-operated with the Department in furnishing records of the number of tons of the different varieties of sugar cane which they have reaped.

This year eighty-seven plantations have submitted returns and these were:—

LOW RAINFALL AREAS: 17 PLANTATIONS. ‡

Bromefield	Hope
Bushy Park	Hopefield
Canevale	Kingsland
Coverley	Pollards
Fairy Valley	River
Friendly Hall	Ruby
Graeme Hall	Union Hall
Grazettes	Wiltshire
Holders	

INTERMEDIATE RAINFALL AREAS: 41 PLANTATIONS.

Alleynedale	Lower Estate
Balls	Molyneux
Belle	Mount Standfast
Bennetts and Mangrove Pond	Newton
Bentley	Norwood
Boarded Hall	Oughterson
Brighton	Pickerings
Bulkeley	Pine
Buttals	Ridge
Carmichael	Sandy Lane
Carrington	Searles
Clermont	Small Ridge
Dodds	Sunbury
Edgecumbe	Valley
Frere Pilgrim	Warrens
Haymans	Waterford
Hillview	Welches
Jordans	Westmoreland
Lamberts	Whitehall
Lodge & Farm	Windsor

‡ The returns from River plantation are not included in the averages as certain areas are grown under irrigation.

HIGH RAINFALL AREAS: 29 PLANTATIONS.

Applewhaites	Guinea
Ashbury	Hothersal
Blowers	Joes River
Canefield	Kendal
Castle Grant	Lancaster
Claybury	Mount
Cliff	Mount Wilton
Clifton Hall	Plum Tree
Colleton	Pool
Drax Hall	Redland
Endeavour	Ridgeway
Fisherpond	St. Nicholas Abbey
Francia	Todds
Golden Ridge	Woodland
Groves	

The total area reported gave an acreage of 12,615.08 acres made up as follows:—

	Acre.	Percentage of total
Plant Canes	7,292.71	57.81
1st. Ratoons	4,043.57	32.05
2nd. „	1,071.60	8.49
3rd. „	146.00	1.17
4th. „	61.20	0.48
	12,615.08	100.00

There is no reason to suppose that the percentage of plant canes to ratoons would be different in the case of the plantations which have not submitted yield returns, and as we know that 17,456 acres were planted by plantations in November 1934 it follows that the crop which has just been reaped was 29,900 acres to which must be added 3,750 acres of peasant canes, or a total of 33,650 acres.

The total crop for the season is approximately 129,197 tons of sugar or 3.84 tons of sugar per acre of cane grown.

The data recorded in the following variety tables do not include any variety from which reports of less than twenty acres have been received.

LOW RAINFALL AREAS.
17 PLANTATIONS.

Plant Canes or Ratoons	Variety	Acreage	Total Tonnage	Tons per Acre.
Plant Canes ..	B.2935	951.25	33,584.29	35.31
" " ..	B.726	129.06	4,060.30	31.46
" " ..	Ba.11569	159.00	4,889.51	30.77
" " ..	B.417	47.50	1,375.65	28.96
1st. Ratoons	Ba.11569	65.75	1,747.91	26.58
" "	B.2935	148.00	3,235.23	21.86
" "	B.726	64.91	1,289.26	19.86

Records of the following varieties of a total of less than twenty acres were received from the low rainfall areas:—

B.374	Plant Canes	5.00	acres.
B.891	" "	10.00	"
B.417	1st. Ratoons	11.00	"
Ba.11569	2nd. "	4.00	"
Mixed Varieties	Plant Canes	26.50	"
" "	2nd. Ratoons	5.50	"

These, however, have been included in the average yields given below.

AVERAGE YIELDS OF ALL VARIETIES—LOW RAINFALL
AREAS.

	Total		Average Tons per Acre.
	Acreage	Tonnage	
Plant Canes ..	1,328.31	45,232.43	34.05
1st. Ratoons ..	290.66	6,434.41	22.14
2nd. " ..	9.50	183.64	19.33
Total ..	1,628.47	51,850.48	31.84

It will be observed that as a plant cane B.2935 easily outyielded any other variety in the low rainfall area, but its performance as a ratoon was comparatively disappointing.

INTERMEDIATE RAINFALL AREA.

41 PLANTATIONS.

Plant Canes or Ratoons		Variety	Acreage	Total Tonnage	Tons per Acre.
Plant	Canes	B.2935	2,259.30	84,210.96	37.27
"	"	B.381	27.50	960.96	34.94
"	"	Ba.11569	188.31	6,258.33	33.24
"	"	B.726	1,481.67	48,443.90	32.69
"	"	B.H.10 (12)	75.84	2,444.00	32.22
1st.	Ratoons	B.2935	520.59	13,525.41	25.98
"	"	B.H.10 (12)	55.00	1,380.82	21.76
"	"	Ba.11569	191.56	4,378.27	20.71
"	"	B.726	1,086.71	23,647.40	23.88
"	"	B.891	61.25	1,268.81	25.11
2nd.	Ratoons	Ba.11569	35.50	848.16	21.72
"	"	B.726	127.95	2,778.67	21.69
"	"	B.891	26.00	563.93	22.86

The fact that from a total of more than 2,250 acres the plant canes of the B.2935 variety in the intermediate rainfall area averaged thirty-seven and a quarter tons per acre is the chief contributing factor to the island's record crop this year.

B.726, although with a slightly less yield per acre than Ba.11569, represents a much greater yield of actual sugar per acre than the latter.

In this area, dry weather usually sets in by the end of January and the growth period for ratoons is limited to about nine to ten months. Under these conditions ratoons, as a rule, do not do very well, but this year conditions were worse than usual because of the very severe drought which was experienced from the middle of December 1935 until the end of the crop season.

Records of the following varieties of a total of less than twenty acres were received from the Intermediate Rainfall Areas:—

B.891	Plant Canes	13.50	acres.
B.27 (3)	" "	4.30	"
"	1st. Ratoons	3.83	"
Ba.6032	Plant Canes	6.00	"
B.721	" "	4.93	"
B.663	1st. Ratoons	7.00	"
B.381	" "	11.50	"
B.2935	2nd. Ratoons	2.25	"
B.H.10 (12)	" "	11.50	"
Mixed varieties	Plant Canes	59.93	"
" "	1st. Ratoons	40.00	"
" "	2nd. "	7.50	"

These, however, have been included in the average yields given below:—

AVERAGE YIELDS: INTERMEDIATE RAINFALL AREA.

				Total.		Average Tons per Acre.
				Acreage	Tonnage	
Plant Canes	..	..	..	4,121.28	144,933.75	35.17
1st Ratoons	..	..	..	1,977.44	45,678.71	23.10
2nd "	..	..	..	208.20	4,587.11	22.03
				6,306.92	195,199.57	30.95

HIGH RAINFALL AREA.

29 PLANTATIONS.

Plant Canes or Ratoons				Variety	Acreage.	Total Tonnage.	Tons per acre.
Plant Canes	..	..		B.2935	129.15	5,317.92	41.18
"	"	..	..	B.726	654.90	25,319.84	38.66
"	"	..	..	B.H.10(12)	991.61	37,554.49	37.87
1st Ratoons	..	..		B.726	607.00	19,471.12	32.08
"	"	..	..	B.2935	71.75	2,232.66	31.12
"	"	..	..	B.H.10(12)	973.72	29,982.20	30.79
2nd Ratoons	..	..		B.726	299.50	8,001.63	26.72
"	"	..	..	B.H.10(12)	474.17	12,205.34	25.74
3rd Ratoons	..	..		B.726	37.00	1,080.95	29.22
"	"	..	..	B.H.10(12)	100.50	2,654.03	26.41
4th Ratoons	..	..		B.H.10(12)	43.95	1,125.49	25.61

The B.H.10(12) variety was handicapped owing to losses due to rotten canes compared with the B.2935 and B.726 varieties which were cut earlier in the crop than the B.H.10(12).

Records of the following varieties of a total of less than twenty acres were received from the High Rainfall Areas:—

B.3013	....	....	Plant Canes	....	....	2.50	acres.
Ba.11569	....	....	" "	....	....	4.00	"
"	....	....	1st Ratoons	....	....	3.00	"
"	....	....	2nd "	....	....	9.50	"
"	....	....	4th "	....	....	6.00	"
B.381	....	....	Plant Canes	....	....	8.00	"
"	....	....	2nd Ratoons	....	....	5.00	"
B.6450	....	....	Plant Canes	....	....	6.74	"
"	....	....	1st Ratoons	....	....	5.00	"
B.891	....	....	Plant Canes	....	....	4.75	"
"	....	....	1st Ratoons	....	....	14.00	"
"	....	....	2nd "	....	....	7.00	"
B.417	....	....	Plant Canes	....	....	5.74	"
B.755	....	....	1st Ratoons	....	....	7.25	"
B.2703	....	....	" "	....	....	2.50	"
B.2935	....	....	2nd "	....	....	16.25	"
Mixed Varieties	....	....	Plant Canes	....	....	35.73	"
"	"	....	1st Ratoons	....	....	91.25	"
"	"	....	2nd "	....	....	42.48	"
"	"	....	3rd "	....	....	11.25	"
"	"	....	4th "	....	....	8.50	"

These, however, have been included in the average yields given below:—

AVERAGE YIELDS: HIGH RAINFALL AREAS.

			Total		Average tons per acre.
			Acreage	Tonnage.	
Plant Canes	....	....	1,843.12	70,689.32	38.35
1st Ratoons	....	..	1,775.47	55,392.20	31.20
2nd Ratoons	....	....	853.90	22,562.19	26.42
3rd Ratoons	....	....	146.00	4,045.88	27.71
4th Ratoons	....	....	61.20	1,552.23	25.36
Total	....	....	4,679.69	154,241.82	32.96

The total average reported yields per reaped acre for the plantations submitting returns are as follows:—

	Total		Acreage, tons per acre.
	Average	Tonnage.	
Plant Canes	7,292.71	260,855.50	35.77
1st Ratoons	4,043.57	107,505.32	26.59
2nd Ratoons	1,071.60	27,332.94	25.51
3rd Ratoons	146.00	4,045.88	27.71
4th Ratoons	61.20	1,552.23	25.36
Total	12,615.08	401,291.87	31.81

Yield of Sugar Cane per Arable Acre.

It is a matter of extreme interest to the planter to obtain the maximum yield for each acre planted with sugar cane on his estate but from the economic point of view the yield per arable acre of the whole plantation is the measure which determines whether sugar cane is being produced on an economic basis.

The higher rainfall areas may for practical purposes be described as the red soils and the lower and intermediate rainfall areas as the black soils, in which ratooning is less extensively practised than in the red areas. The following table shows the yield per arable acre in these two areas together with the arable acreage for all the plantations which have submitted crop returns and which may be taken as a very close reflex of the whole island.

	Total			Average tons per arable acre.
	Reaped.	Total Arable.	Total Tonnage.	
Black Soils				
(a) Low Rainfall	1,628.47	2,887.00	51,850.48	17.96
(b) Intermediate Rainfall	6,306.92	10,871.50	195,199.57	17.96
Red Soils	4,679.69	6,929.00	154,241.82	22.26
Total	12,615.08	20,687.50	401,291.87	19.39

But for the drought experienced during the whole crop season the difference between the red and the black soils would have been considerably increased.

REPORT OF THE BOTANIST FOR THE YEAR 1935—36.

BY

A. E. S. McINTOSH.

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A. SUGAR CANE BREEDING, SEEDLING SELECTION AND TRIALS.

(i) Sugar Cane Breeding—B.38' Series.

Sugar cane breeding was carried out at Lion Castle during October, November and December, 1935.

In all, eighty-five crosses were made. These are detailed in Appendix I.

A summary is given below:—

Group.		No. of Crosses. Totals.	
(a)	Crosses between varieties of noble cane (<i>Saccharum officinarum</i> .)	19	19
(b)	Nobilisations of Chunnee (<i>Saccharum barberi</i>)		
	1st degree	4	8
	2nd degree	1	
	3rd degree	3	
(c)	Nobilisations of <i>Saccharum Spontaneum</i> .		
	(i) <i>North Celebes form</i> .		
	3rd degree	2	2
	(ii) <i>Java form</i> .		
	2nd degree	2	41
	3rd degree	6	
	4th degree	20	
	5th degree	13	
	(iii) <i>Indian form</i> .		
	1st degree	1	1
(d)	Nobilisations of Uba (<i>Saccharum sinense</i>)		
	1st degree	2	2
(e)	Crosses involving various species of <i>Saccharum</i>	12	12
Grand Total			85

(ii) Seedling Raising and Field Nursery Planting. B. 38' Series.

In all, approximately 70,000 seedlings germinated. Approximately 19,500 of these were potted. Of these, about 3,000 died, probably as a result of the method of flooding the cisterns, whereby root disease was encouraged. In the end, overhead watering had to be done. Details of seedling numbers for each cross, after deducting the numbers of dead seedlings, are given in Appendix I.

Approximately 16,500 seedlings eventually survived. These were allocated in potting as follows:—

(a)	Crosses between noble canes	9,176
(b)	Nobilisations of <i>Saccharum barberi</i>	137
(c)	Nobilisations of <i>Saccharum spontaneum</i>	
	(i) North Celebes form	32
	(ii) Java form	4,426
	(iii) Indian form	515
(d)	Nobilisations of <i>Saccharum sinense</i>	115
(e)	Mixed derivation	2,104
Total		16,505

In April and May, 1936, approximately 14,600 of these potted seedlings were planted in a field nursery. Nursery plantings are detailed in Appendix I. A summary is given here:—

Group.	No. Crosses.	No. Seedlings Planted.
(a) Proven and Semi-Proven Crosses	17	8,070
(b) Experimental Crosses (Nobilisations)	48	6,577
	65	14,647

In the nursery, the seedlings were planted closely, that is, three per cane hole. Populations of crosses were kept distinct. Otherwise no special lay-out was employed. In October and November, 1936, approximately 10,000 seedlings will be selected from this nursery and planted in the First Year Seedling Trial proper. This will be reaped in 1938.

(iii) First Year Seedling Trial Planting. B. 37' Series.

These were bred in 1934, and approximately 12,200 planted into the field nursery in April, 1935. During October and November, 1935, selections from this field nursery were planted in the First Year Seedling Trial to be reaped during the crop in 1937. There is thus no B.36' series of seedlings.

Approximately 7,400 were selected in the nursery and planted in the First Year Seedling Trial. It is thus seen that approximately 40 per cent. of the seedlings were eliminated in the field nursery stage. The features used to eliminate seedlings were, (1) cane width (especially in noble crosses and higher degrees of nobilisation), (2) presence of arrowing, and, to a lesser extent, (3) number of canes. The value of the field nursery for eliminating, at an early stage, obviously poor seedlings was clearly demonstrated. The field nursery will therefore be continued as a routine stage, and the possible alternative method of allowing for a November planting of the First Year Seedling Trial by storing fuzz will no longer be considered.

Details of the April 1935 nursery planting, and the October—November 1935 First Year Seedling Trial planting, are given in Appendix II. A summary is given below:—

Group.				No. Crosses.	No. Seedlings.
(a)	Proven and Semi-Proven	Crosses	.. .. .	12	4,981
(b)	Experimental Crosses (chiefly higher degrees of nobilisation)	.. .. .	.. .. .	37	2,186
(c)	Lower degrees of nobilisation (chiefly to provide breeding material)	.. .. .	.. .. .	7	232
Totals				56	7,399

Seedling populations under (a) and (c) above were put in blocks. The individuals comprising the two thousand odd seedlings under (b) were placed at random in the experimental cross area: this to provide for experimental crosses legitimate statistical comparison for several features.

(iv) **Notes on Seedlings Constituting the B.35' Series.**

During the crop in 1935, the following seedlings were selected from the First Year Seedling Trial:—

Noble cane (thick-cane) seedlings	.. .. .	115
Nobilisations	.. .. .	86

The former were planted in multiplication, gumming disease resistance test and minor selection plots at Codrington and Dodds. Final selections will be made at the latter place in November, 1936, and the selections planted then in routine second year trials.

Of the 86 nobilisations, 48 were selected in November, 1935 from multiplication plots at Codrington, and planted then in a second year trial at Codrington for reaping and selecting in 1937. Selections from this trial are intended for British West Indian Colonies outside Barbados.

(v) **Notes on Seedlings Constituting the B. 34' Series.**

At Dodds, in October, 1935, final selections of thick-cane noble seedlings were made in the multiplication and gumming disease resistance test plots. In all, 46 seedlings were selected and planted in November, 1935, at Dodds (low-rainfall station) and Todds (high-rainfall station) for the Second Year Seedling Trials proper. Twenty-two are being tested in an early group and twenty-four in a late group at both places.

The selected nobilised seedlings of this series—34 in all—were tested during season 1934-36 in a second year trial at Codrington. At reaping, eleven selections were made for subsequent test in British West Indian Islands outside Barbados.

(vi) **Second Year Seedling Trials—B. 33' Series.**

These were reaped at Dodds and Todds during the 1936 crop. At both stations there were an early and a late group, reaped early and late in crop respectively for each station.

The usual data was taken at reaping and four seedlings finally selected. One of those—B.3337—is for subsequent test outside Barbados. The other three—B.3307, B.3327 and B.3439—are promoted to Select Seedling standard, and are being multiplied for inclusion in Select Seedling Trials and Maturity Experiments during season 1936-38.

The two seedlings—B.3259 and B.3267—which were selected in the late group of Second Year Trials reaped in 1935 are undergoing test in Seedling Select Trials and Maturity Experiments for season 1935-37.

(vii) **Select Seedling and Variety Trials. B.30', B.31', B.32' Series.**

(a) *Introduction.* These two types of trial are here considered under one head. The Select Seedling Trials* are designed to test promising seedlings, for early and late reaping, against appropriate standard varieties over a range of growing conditions. The seedlings undergoing a first or second season of test in those trials are selections from second year trials. These selections are tested in *all* select seedling trials in any one season unless any should show, in their second year trials, distinct adaptability to special conditions, in which case they are allocated to Select Seedling Trials located in areas only with these conditions. Any one Select Seedling Trial is so designed to admit of its being reaped early and late for the crop season in the district. The Variety Trials represent the final stage in seedling testing prior to recommending seedlings for commercial planting. They are trials conducted on a large scale to compare seedling and standard commercial variety tonnages only. The seedlings promoted to these trials have already shown, in earlier trials and experiments, definite promise of becoming commercial varieties. Moreover, it is known, for any seedling reaching variety trial stage, to what conditions it is most adapted. Consequently the *allocation* of Variety Trials in any one season will depend on the nature of the seedling or seedlings to be tested.

(b) *The Seedlings Tested During the Season Under Review.* The following seedlings were tested in *plant cane* Select Seedling Trials—B.3124, B.3125, B.3127, B.3138, B.3179, B.3216, B.3234, B.3239. Seedlings of the B.31' series were undergoing a second season's test, those of the B.32' series were being tested for the first time in Select Seedling Trials.

In *first ratoon* Select Seedling Trials the following seedlings were reaped—B.3013, B.3124, B.3125, B.3127, B.3138, B.3179.

In a *second ratoon* Select Seedling Trial, B.3013 was reaped.

* A detailed description of these types of trial is published in Bulletin No. 9 of the B.W.I. Central Sugar Cane Breeding Station.

The *Variety Trials* reaped in 1936 were designed to test the yields of two seedlings—B.3013 and B.3234. These were chosen for, and tested in the main in, higher-rainfall red-soil areas and in valley soils. The standard varieties for comparison were chiefly, therefore,—B.726 and B.H.10 (12).

The varieties chosen as standards for comparison at any one station in Select Seedling Trials and Variety Trials were the commercial varieties of the area in which the station was located.

(c) *An Ecological Classification of the Trials*: Since it has been shown elsewhere that there exists a marked differential response on the part of sugar cane seedlings to different environments, it is here considered best to classify the stations where the trials were situated into ecological units and to compare seedling performances within these units.

Accordingly, the following classification of trials reaped in 1936 is made:—

- A. This area comprises black and sandy coral limestone soils where average seasonal rainfall is low. On account of low rainfall, ratooning is difficult and tonnages are, as a rule, low.

The following stations fall into this category:—

- (a) Select Seedling Trials, plant canes—Six Mens, Spring Hall, Seawell.
 - (b) Variety Trials, plant canes—Pollards, Molyneux.
- B. Black coral limestone soil area, low-intermediate rainfall. On account of a better rainfall, a certain amount of ratooning is practised in this area. The extent of this ratooning would increase were strong ratooning seedlings available.

The stations in this category are:—

- (a) Select Seedling Trials:—
 - (i) plant canes—Lower Greys.
 - (ii) first ratoons—Frere Pilgrim.
 - (b) Variety Trials:—
 - (i) plant canes—Lower Estate.
- C. Valley deep black coral limestone soil area, low-intermediate rainfall. This area may experience a certain amount of water-logging. A considerable percentage of the area is ratooned. Strong-rooting seedlings are necessary here.

The stations in this category are:—

- (a) Select Seedling Trials:—
 - (i) plant canes—Carrington.
 - (ii) first ratoons—Buttals.
- (b) Variety Trials:—
 - (i) plant canes—Constant.

D. Red coral limestone soil area, intermediate to high rainfall. One to three ratoon crops are grown here.

The stations under this head are numerous on account of (a) ratooning and (b) testing the seedlings B.3013, B.3234 in Variety Trials chiefly in this area.

STATIONS:

(a) Select Seedling Trials:—

(i) plant canes—Lammings, Apes Hill, Fisherpond.

(ii) first ratoons—Guinea, Cottage, Wakefield.

(iii) second ratoons—Bowmanston.

(b) Variety Trials:—

(i) plant canes—Applewhaites, Ashbury, Nicholas, Vauluse, Lancaster, Kendal, Clifton Hall, Farmers, Mount Wilton.

(d) *Rainfall During the Season*: The average rainfall from a number of stations over the Island for 1935 was 69.69 inches. This is appreciably in excess of the average annual rainfall for the forty-year period 1890-1929—60.87 inches. This increased rainfall was general throughout the Island.

The monthly distribution of the 1935 rainfall was as follows:—

January	..	4.36	April	..	1.90	July	..	9.59	October	..	9.12
February	..	2.43	May	..	5.14	August	..	9.03	November	..	11.14
March	..	1.97	June	..	1.48	Sept.	..	8.69	December	..	4.84

The rainfalls for January, May and July were appreciably in excess of their respective averages for the forty-year period.

In general, it may be noted that, as a result of the high rainfall and more especially of the above noted high rainfalls during the earlier months of the year, the 1934-36 crop tended to be very forward in growth. The stools had tillered well early in the year, and canes had reached unusual lengths by the end of the year.

From mid-December, 1935, to the end of March, 1936, that is, just prior to, and during the greater part of the crop, a severe drought took place—the average total rainfall for this period being little in excess of two inches. The general effect of this, coupled with the fact that the stools were in a forward condition, led to appreciable drying out of cane during crop and ready susceptibility of injured canes to attack and destruction by secondary fungi or weak parasitic fungi.

In an interpretation of the results of the trials, it must be borne in mind that, throughout the trials, and because of the abovenoted conditions, those

seedlings with a strong resistance to drying-out during crop were comparatively favoured, and also, in view of the comparatively long favourable growing season throughout, longer season types were placed at an advantage within each category.

(e) *Results of the Trials.* In Select Seedling plant cane trials, the following routine data is obtained:—(1) cane tonnage, (2) number of rotten canes, (3) complete cane chemical analyses, and so calculation of the saccharose per acre. Statistical analyses of cane tonnages and sucrose per cent. in juice are made. In Select Seedling ratoon trials, cane tonnages and number of rotten canes only are obtained. Thus, for seedlings, comparative cane chemical data are obtained in Select Seedling plant cane trials only, and the figures obtained serve for approximating the saccharose yields of seedlings in Select Seedling ratoon and Variety Trials.

The results are presented in a series of Figures and Tables. The Figures present, for plant cane Select Seedling Trials, the important figure—yield of saccharose per acre, and, for ratoon Select Seedling Trials and Variety Trials, the tonnage of cane per acre. The small lines along side ratoon Select Seedling Trials and Variety Trials represent established significant statistical differences in tonnage between seedlings. Each ecological category is represented by one Figure, except in category D, where three figures are necessary. The Tables provide, for each category, other information relevant to the commercial value of each seedling.

The various categories are considered in turn.

A. The saccharose yields for early and late reapings at three Select Seedling Trials stations, and the tonnage yields for two Variety Trials are shown in Figure I.

Further data obtained in the Select Seedling Trials is presented in Table I below.

TABLE I.

CATEGORY A. SELECT SEEDLING TRIALS. PLANT CANES.

(a) *Tons Cane per Acre.*

Seedling.	REAPING.							
	EARLY.				LATE.			
	Six Mens.	Spring Hall	Seawell.	Average.	Six Mens.	Spring Hall.	Seawell.	Average
B. 2935 ...	48.23	43.18	45.23	42.21	41.00	40.33	27.51	36.28
B. 726 ...	35.70	29.15	33.11	32.65	32.60	29.17	19.77	27.18
B. 3124 ...	42.49	38.41	33.59	38.16	...	...	...	...
B. 3127 ...	39.43	31.77	36.07	35.76	32.24	26.09	26.80	28.38
B. 3216 ...	38.75	27.71	33.03	33.16	24.41	19.00	12.21	18.54
B. 3234 ...	...	...	33.53	...	...	...	16.92	...
Significant Differences	3.45	3.53	3.03	...	3.49	4.70	3.76	...

(b) *Average Number of Rotten Canes per Plot (48 Cane Holes).*

B. 2935 ...	7	9	18	9	21	64	217	101
B. 726 ...	5	2	27	9	25	63	265	118
B. 3124 ...	13	20	49	27	...	...	...	...
B. 3127 ...	5	8	33	15	19	46	162	76
B. 3216 ...	8	12	61	27	109	260	460	276
B. 3234 ...	...	...	38	...	...	...	384	...

(c) *Per Cent. Sucrose in Cane.*

B. 2935 ...	13.39	13.19	13.77	13.45	14.96	15.21	14.29	14.82
B. 726 ...	14.89	14.41	15.72	15.01	16.78	16.03	15.02	15.94
B. 3124 ...	15.40	15.33	15.86	15.53	...	...	...	...
B. 3127 ...	13.84	13.93	14.75	14.17	16.65	15.70	15.44	15.93
B. 3216 ...	14.44	14.16	14.37	14.32	15.20	15.66	14.78	15.21
B. 3234 ...	...	...	14.18	...	...	...	...	...

Conclusions for Category A. The standard varieties were B.726 and B.2935. The seedlings under test were—B.3013, B.3124, B.3127, B.3216 and B.3234.

B.2935 was emphatically superior to B.726 in cane tonnage and saccharose yield. B.3013 was inferior to B.726. B.3124 was tested in the early reaped sections only of the Select Seedling Trials. In tons of cane it yielded closest to B.2935 of all the seedlings tested, and had the highest sucrose in cane. In two out of three trials, it gave a higher saccharose yield than B.2935. It rots early and must be cut early. This seedling has some promise as an early variety for areas in this category. It has been put for season 1935-37 into Variety Trials at six stations in this category. These trials will be cut early in crop in 1937. B.3127 gave approximately similar yields to B.726, and would not appear to be promising in this category, except it should prove to ratoon very well (see later). B.3216 is inferior to the standards, more especially at late reapings. B.3234 is not suited to the lower-rainfall black coral limestone soils.

In conclusion, B.3124 shows some promise as an early variety, while B.3127 may prove in future experiments to be valuable in giving a ratoon crop where other varieties fail.

B. In this category, one plant cane Select Seedling Trial, one ratoon Select Seedling Trial and one plant cane Variety Trial were reaped. Results are shown in Figure II.

The following additional information is available from the plant cane Select Seedling Trial at Lower Greys. (Table II. below).

TABLE II.

CATEGORY B. SELECT SEEDLING TRIAL—PLANT CANES.

Seedling	Reaping.					
	Early.			Late.		
	Tons Per Acre.	Average No. Rotten Canes Per Plot.	Per Cent. Sucrose in cane.	Tons Per Acre.	Average No. Rotten Canes Per Plot.	Per Cent. Sucrose in cane.
B.2935 ..	41.72	12	14.69	35.14	72	15.80
B.726 ..	35.82	6	16.34	35.02	41	18.17
B.3124 ..	34.56	28	16.38	..	..	..
B.3127 ..	35.71	12	15.23	37.65	12	17.86
B.3179 ..	34.24	10	14.67	34.57	32	16.76
B.3216 ..	39.75	12	15.61	38.22	42	16.92
B.3234 ..	32.61	7	14.13	32.96	42	15.78
B.3239 ..	29.44	3	15.37	30.39	7	16.91
Significant Differences	3.30	..	..	3.14	..	..

Conclusions For Category B. The general increase in rainfall tended to favour the intermediate-season types (e.g. B.726 and B.3013) at the expense of shorter-season types (e.g. B.2935 and B.3124). The latter showed a distinct tendency to lose tonnage quickly. Thus at the early reaping, B.2935 did not yield as greatly in excess of B.726 as might be expected for an average year, while at the late reaping, tonnages of these two varieties were approximately equal. At the same time, the ratoon trial shows B.726 to out-yield B.2935 appreciably. The conclusions in so far as these standard commercial varieties are concerned would appear to be that B.2935 should be grown on thinner fields and emphasis laid on it as a plant cane, while B.726 should be planted in better fields and preferred for ratooning purposes.

In so far as the seedlings under test are concerned, there would appear to be no difference in the yields of B.726 and B.3013. The latter gives a cane chemical analysis equal to B.726. In addition, B.3013 had been conclusively

shown to withstand drought during crop better than B.726. Under these circumstances, it would appear to give some promise as a late variety for these areas.

The outstanding seedling here was B.3127. Its ratoon yield was especially good and it showed, in plant canes, the highly desirable characteristic of remaining comparatively sound throughout crop. Its cane chemical analyses show it to come near B.726, although it is somewhat later in maturing. A strong ratooning variety would be a great asset in this area and B.3127 gives indication of fulfilling this. It is to be tested extensively in Variety Trials in Season 1936—38.

B.3216, although doing well here, has been noted elsewhere to be very susceptible to *Rind Fungus* attack, and, on this account, will be eliminated.

The other seedlings tested would appear to be inferior to the standards in this area.

C. In the black coral limestone valley soils, the seedling requirements are somewhat distinct from the contiguous shallow black coral limestone areas.

At present B.726 is the standard commercial variety in the valley soils. With regard to the new commercial variety—B.2935—previous reports have expressed doubts as to its usefulness here. It was therefore included in all three trials reaped here.

In all, one plant cane Select Seedling Trial, one 1st ratoon Select Seedling Trial and one Variety Trial (reaped in two portions) were reaped in the valley. The results are shown in Figure III.

Further data from the plant cane Select Seedling Trial are noted below in Table III.

TABLE III.

CATEGORY C. SELECT SEEDLING TRIAL. PLANT CANES.

Seedling	Reaping.					
	Early			Late		
	Tons per Acre.	Average No. Rotten Canes per Plot	Per Cent. Sucrose in Juice	Tons per Acre	Average No. Rotten Canes per Plot	Per cent. Sucrose in Juice
B.726 ..	40.46	22	15.74	27.59	142	17.09
B.2935 ..	38.37	59	14.89	25.23	197	15.19
B.3124 ..	34.66	85	16.68	..	..	..
B.3127 ..	41.75	22	15.63	37.14	32	16.39
B.3138 ..	37.51	24	15.78	30.09	89	16.92
B.3179 ..	38.93	13	15.23	32.88	78	15.63
B.3216 ..	41.81	57	15.20	27.43	190	16.21
B.3234 ..	41.70	39	14.70	29.90	88	15.41
Significant Differences	3.49	..	..	4.07	..	..

Conclusions for Category C. B.2935 did poorly in both Select Seedling Trials, while in the Variety Trial it was not sufficiently better in yield of cane to offset its juice quality; inferior to B.726 and B.3013. In addition, it does not ratoon so well as B.726 in the valley. It is, therefore, not recommended as a commercial variety in valley soils.

B.3013 outyielded B.726 in the Variety Trial. In the ratoon Select Seedling Trial, it was inferior in yield to B.726. This latter result is difficult to explain in view of the very good ratooning of B.3013 in other trials (see Category D.). Further trials are necessary to test B.3013, particularly as a ratooning seedling in valley soils.

Here, as in Category B., B.3127 is the outstanding seedling, being top in each of the three reapings. In 1935, B.3127 was better than B.726 in both reapings of the valley plant cane Select Seedling Trial.

This seedling, especially in view of its strong ratooning ability, gives decided promise of becoming the standard commercial variety in valley soils.

The other seedlings tested would not appear to give promise outyielding the standard—B.726.

B.3127 will be tested with B.3013 in Variety Trials against B.726 in valley soils in 1936-38.

D. Extensive trials were carried out in areas under this category. In all, three plant cane Select Seedling Trials, four ratoon Select Seedling Trials and nine Variety Trials were reaped here. The results are presented in Figures IV, V and VI. Further data from the plant cane Select Seedling Trials is presented below in Table IV. One reaping only—the early reaping—was made at Lammings plantation.

TABLE IV.
CATEGORY D. SELECT SEEDLING TRIALS. PLANT CANES.
(a) *Tons Cane per Acre.*

REAPING.								
Seedling.	EARLY.				LATE.			
	Lammings	Apes Hill.	Fisher-Pond.	Average.	Apes Hill.	Fisher-Pond.	Average.	
B. 726 ...	42.61	42.70	35.22	40.14	37.04	28.34	32.69	
B.H. 10 (12)	39.66	...	40.34	40.00	38.93	30.46	34.70	
B. 3125 ...	38.22	40.62	38.66	39.17	33.91	31.15	32.53	
B. 3127 ...	42.30	38.72	44.29	41.77	37.39	35.38	36.39	
B. 3138 ...	...	40.44	...	40.44	...	32.77	32.77	
B. 3179 ...	37.64	36.86	39.97	38.16	37.68	29.22	33.45	
B. 3216 ...	39.13	42.58	27.06	36.26	34.95	22.71	28.83	
B. 3234 ...	34.77	36.41	42.74	37.98	31.54	34.50	33.02	
B. 3239 ...	27.28	...	37.30	32.29	33.25	...	33.25	
Significant Differences	6.05	4.32	4.57	...	4.04	4.09	...	

(b) *Average Number Rotten Canes per Plot.*

B. 726 ...	10	14	120	48	32	102	67
B.H. 10 (12)	3	...	25	14	22	49	36
B. 3125 ...	5	15	32	17	50	68	59
B. 3127 ...	7	14	66	29	32	61	47
B. 3138 ...	...	6	...	6	...	31	31
B. 3179 ...	0	6	19	8	23	45	34
B. 3216 ...	51	28	99	59	56	155	103
B. 3234 ...	2	22	20	15	33	48	41
B. 3239 ...	2	...	6	4	13	...	13

TABLE IV.—*Contd.*

CATEGORY D. SELECT SEEDLING TRIALS—PLANT CANES.

(c) *Per Cent. Sucrose in Cane.*

Seedling	Reaping.						
	Early				Late		
	Lammings	Apes Hill	Fisher-pond.	Average	Apes Hill	Fisher-pond.	Average
B.726	16.04	16.09	15.58	15.90	16.21	15.82	16.01
B.H.10(12)	15.27	..	15.06	15.17	15.98	16.24	16.11
B.3125	15.44	15.30	14.56	15.10	15.18	15.33	15.26
B.3127	15.68	15.66	15.11	15.48	17.06	16.39	16.73
B.3138	..	15.54	..	15.54	..	15.55	15.55
B.3179	16.36	15.30	15.66	15.77	15.58	15.75	15.67
B.3216	14.45	16.04	13.51	14.67	16.26	15.20	15.73
B.3234	15.21	14.61	13.83	14.52	15.38	14.64	15.01
B.3239	14.99	..	15.21	15.10	16.89	..	16.89

Conclusions for Category D. The effect of the crop season drought was especially severe in the red soils. Intermediate length of season types, like B.726, tended to lose cane weight by drying out as the crop progressed. Even B.H.10(12), a longer season type, lost considerable weight by the end of crop. In plant cane trials B.726 was at its best in the earlier reapings. Later, and particularly in high tonnage areas, it lost weight rapidly.

In ratoon trials, which were cut in April, B.726 was better than B.H.10(12), except at Wakefield, where drying out was more marked. In regard to these standard varieties, in general, B.726 was better than B.H.10(12) early in crop, while the reverse was the case in later reapings. This

is in accordance with planting recommendations which advise the use of B.726 in these areas as an early variety. It must be noted here that B.726 is not so ready to lose weight in an average season.

In respect of the seedlings tested, it is fairly definite that the following seedlings do not show promise of displacing the standards in this category—B.3125, B.3138, B.3179, B.3216, B.3239. At least it can be said of them that none is so promising as the seedlings B.3013 and B.3127.

As to the seedling—B.3234—it is seen that it does well only where growing conditions—as judged by tonnages—are very good (c.f. Kendal, Clifton Hall, Mt. Wilton). Here, however, B.3013 approximates to it in tonnage. The cane chemical analyses of B.3013 are superior to those of B.3234, so that it is doubtful if the latter seedling will find a place in commercial plantings.

The outstanding seedlings were—B.3013 and B.3127. Their performances are, therefore, considered in greater detail. B.3013 was tested in nine plant cane Variety Trials, three first ratoon Select Seedling Trials, and one second ratoon Select Seedling Trial. In the Variety Trials it was undoubtedly the best of all four varieties tested, beating both standard varieties—B.726 and B.H.10(12) at six out of nine stations, and being very close to them at the remaining three stations.

Its soundness during crop was especially noticeable. As growing conditions improve—as noted by tonnages—B.3013 tends to draw away from the standards—more especially where conditions promote drying out in canes.

In the ratoon trials, B.3013 yielded better than the standards at all four stations. Its performance in second ratoons at Bowmaiston—41 tons per acre—was particularly noteworthy. It is interesting to note that it was second only to B.3127 in ratoon tests.

B.3013 prefers good growing conditions. Here it may be expected to yield at least as much plant cane per acre as the standards, and it would appear to give higher ratoon yields. It is easily reaped and has excellent cane analyses. With regard to the latter, it ripens slightly later than B.726, but remains remarkably sound to the end of the crop.

B.3013 gives every indication of becoming at least a midcrop variety in this category. Thus, in these areas, the recommendations would be, in order of reaping—B.726, B.3013, B.H.10(12). Further tests may show it to be superior to B.H.10 (12).

B.3013 is re-included for season 1935-37 in six plant cane Variety Trials in this category, and in addition, it is hoped to get first ratoon data from the nine plant cane Variety Trials reaped this year. In this area, it will be recommended this year for small-scale plantings, while finite recommendations will be issued in 1937.

The seedling B.3127 is one year younger than B.3013. As a result it is not possible to make any conclusive statements as to its commercial value. It is, however, definitely promising, as the following summary of its performance shows.

In plant cane Select Seedling Trials it was highest in saccharose per acre yield in late reapings at both stations (See Fig. IV—Apes Hill and Fisherpond). In the early reapings it was a close second to B.726 at Lammings and first at Fisherpond. At Apes Hill it was inferior to B.726.

It is, however, as a ratoon that this seedling is outstanding. It was reaped at two stations in this category. At both stations, it was easily first (see Fig. IV—Cottage and Wakefield). Earlier in this section of the report, it was seen to be first in ratoon trials in Categories B and C. It would, therefore, appear to be a very strong ratooning seedling. The advantages of this in Barbados are evident.

B.3127 germinates and establishes readily. It stools freely and cane growth is rapid. The canes are very long and of good width. The earlier canes tend to arrow. Like B.H. 10(12) it produces late canes. These grow rapidly and are probably responsible for a slightly later juice ripening than B.726 and, at the same time, a tendency to remain sound during crop. One unfortunate feature about this seedling, especially in this category, is its tendency to back-root and in the reaping somewhat difficult. This tendency was also marked in B.726 when in its earlier stages of trial. Back-rooting in B.726 is, however, at present negligible, and it is possible that B.3127 may, like B.726, lose this undesirable feature.

B.3127 at its best has a juice of quality close to B.726. It ripens in time after B.726, but before B.H.10(12).

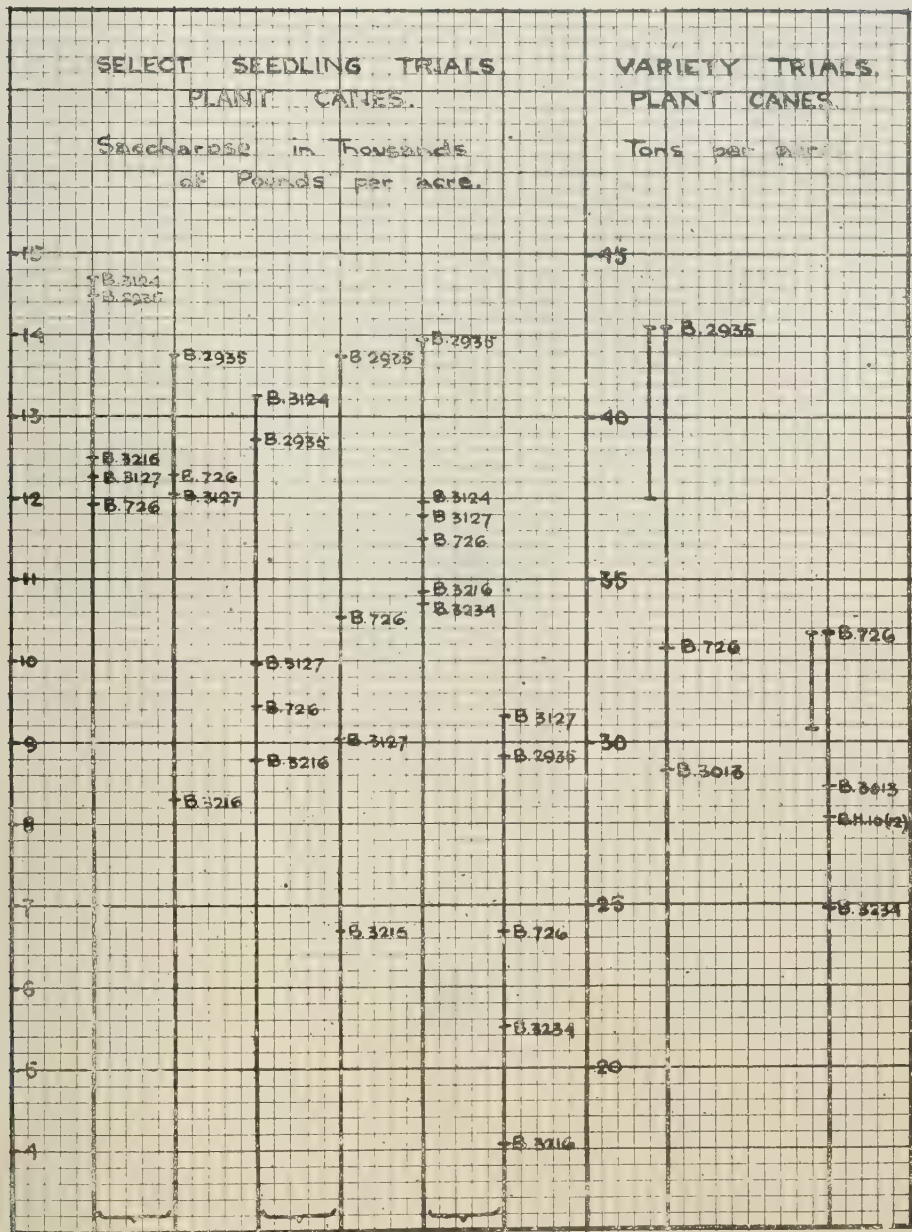
B.3127 gives promise of becoming a general purpose variety in Barbados, showing possibilities for Categories B, C, and D.

It is to be extensively tested in future.

(f) *Note on the Seedling Requirements of Barbados.* In regard to cane breeding and selection work, the chief requirement at present in Barbados is an early ripening seedling for the lower-rainfall black coral limestone soils. This is necessary in order to admit of B.2935 attaining a better juice quality prior to its reaping. The greatest attention in the breeding and selecting work is being paid to this. Two seedlings show some promise for this purpose—B.3124 and B.3307.

(g) *Planting Recommendations.* These will be issued as usual to each estate and small-holders area during the year. Four varieties will be recommended—B.726, B.H.10(12), B.2935 and B.3013—their allocations being guided by the results of trials and plantation variety cane yield returns.

FIG I. CATEGORY A.



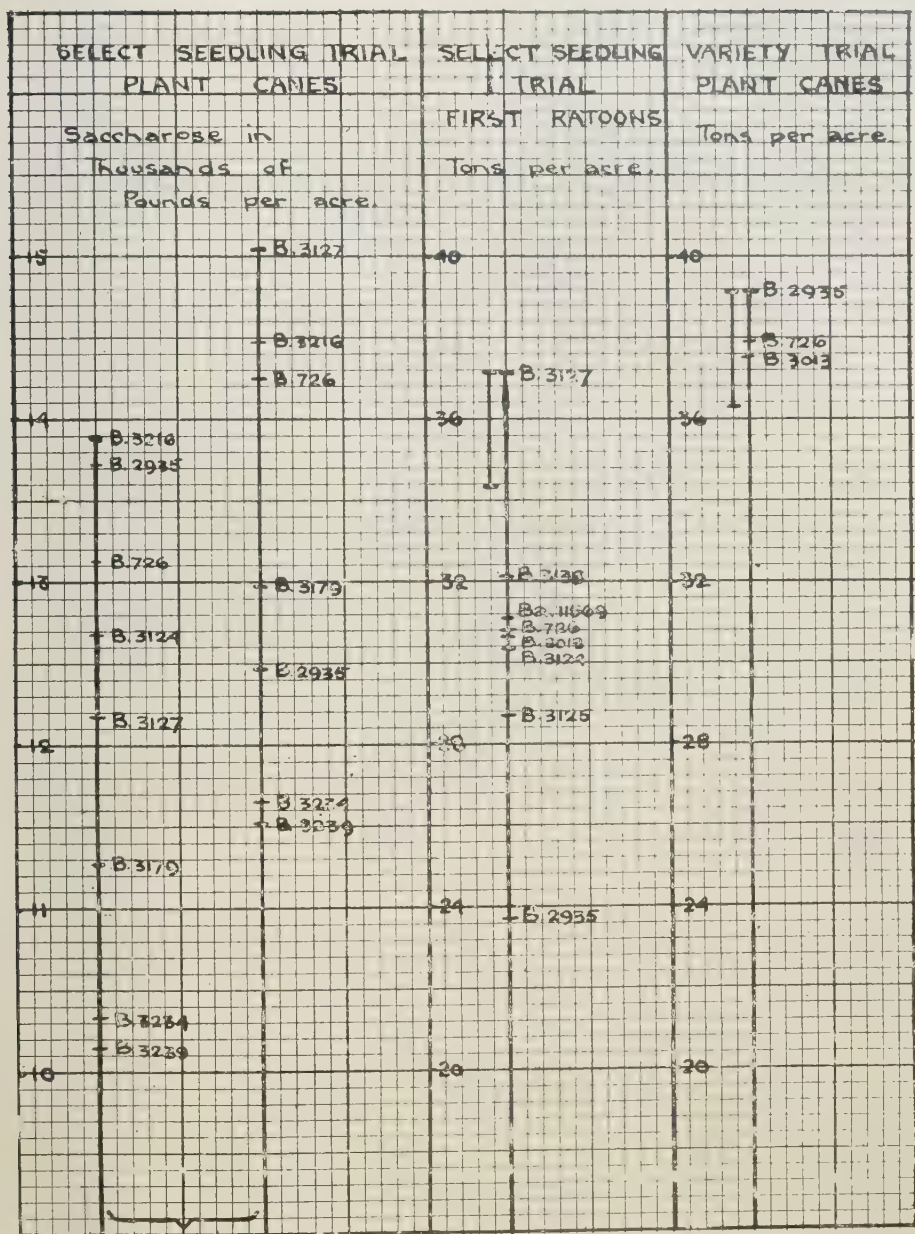
SIX MENS. SPRING HALL. SEAWELL.

30.1.36 16.3.36 5.2.36 24.3.36 6.2.36 25.3.36

POLLARDS, MOLYNEUX.

11.2.36 9.3.36

FIG II. CATEGORY B.

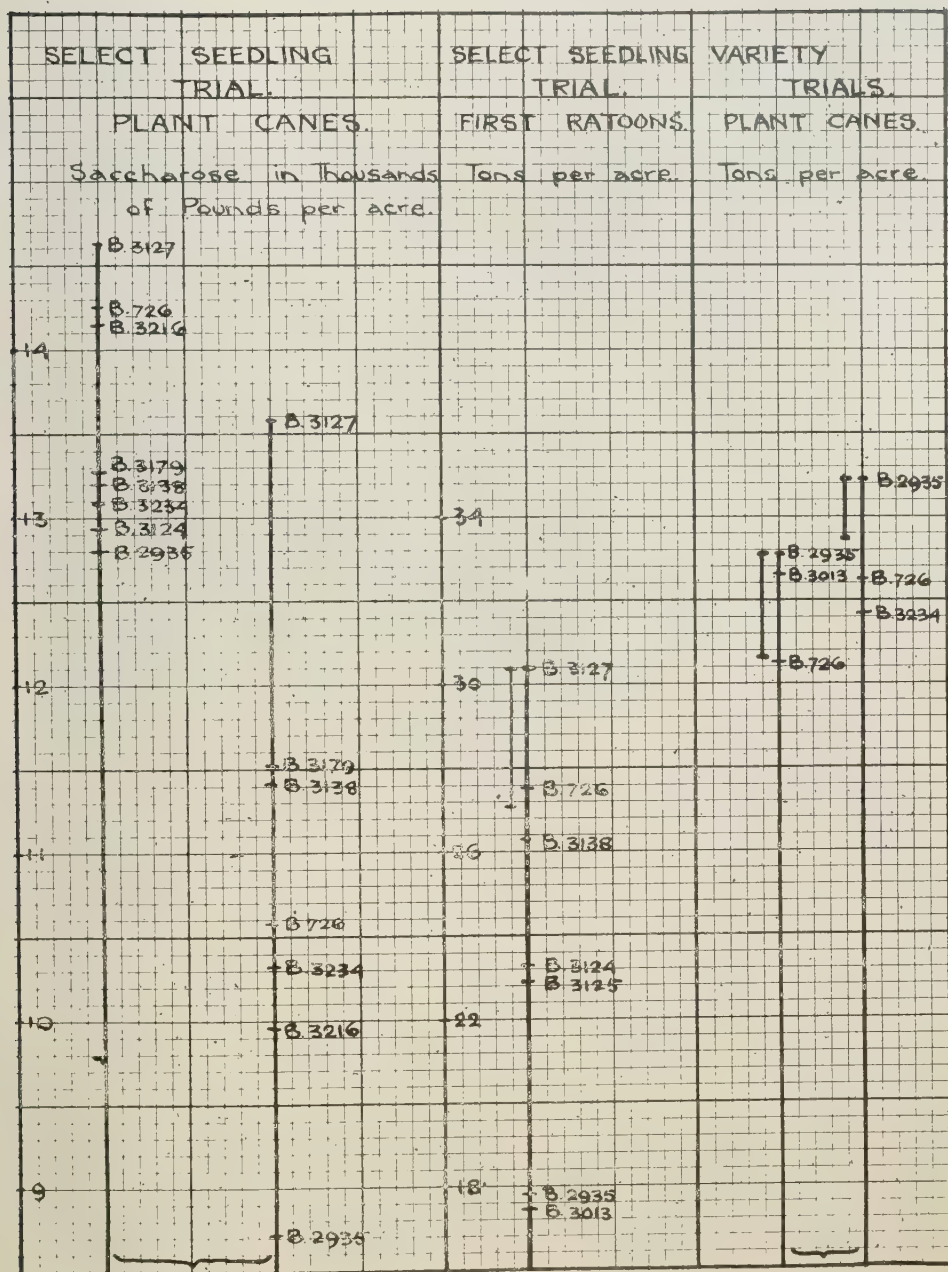


LOWER GREYS.
13.2.36 26.3.36

FRERE PILGRIM.
12.3.36

LOWER ESTATE
19.2.36

FIG III. CATEGORY C.



CARRINGTON.

BUTTLARS.

CONSTANT.

14.2.36 27.3.36

10.3.36

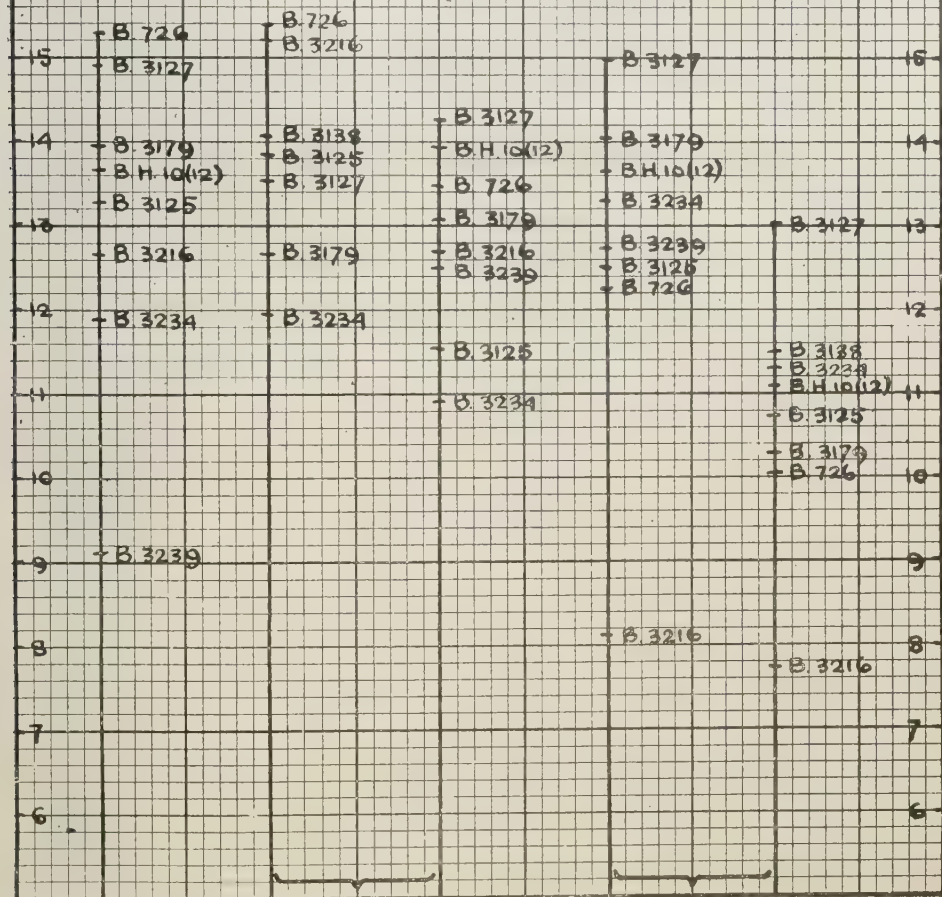
4.3.36 19.3.36

FIG IV. CATEGORY D.

SELECT SEEDLING TRIALS.

PLANT CANES.

Saccharose in Thousands of
Pounds per acre.



LAMMINGS

APES HILL

FISHER POND

24.2.36

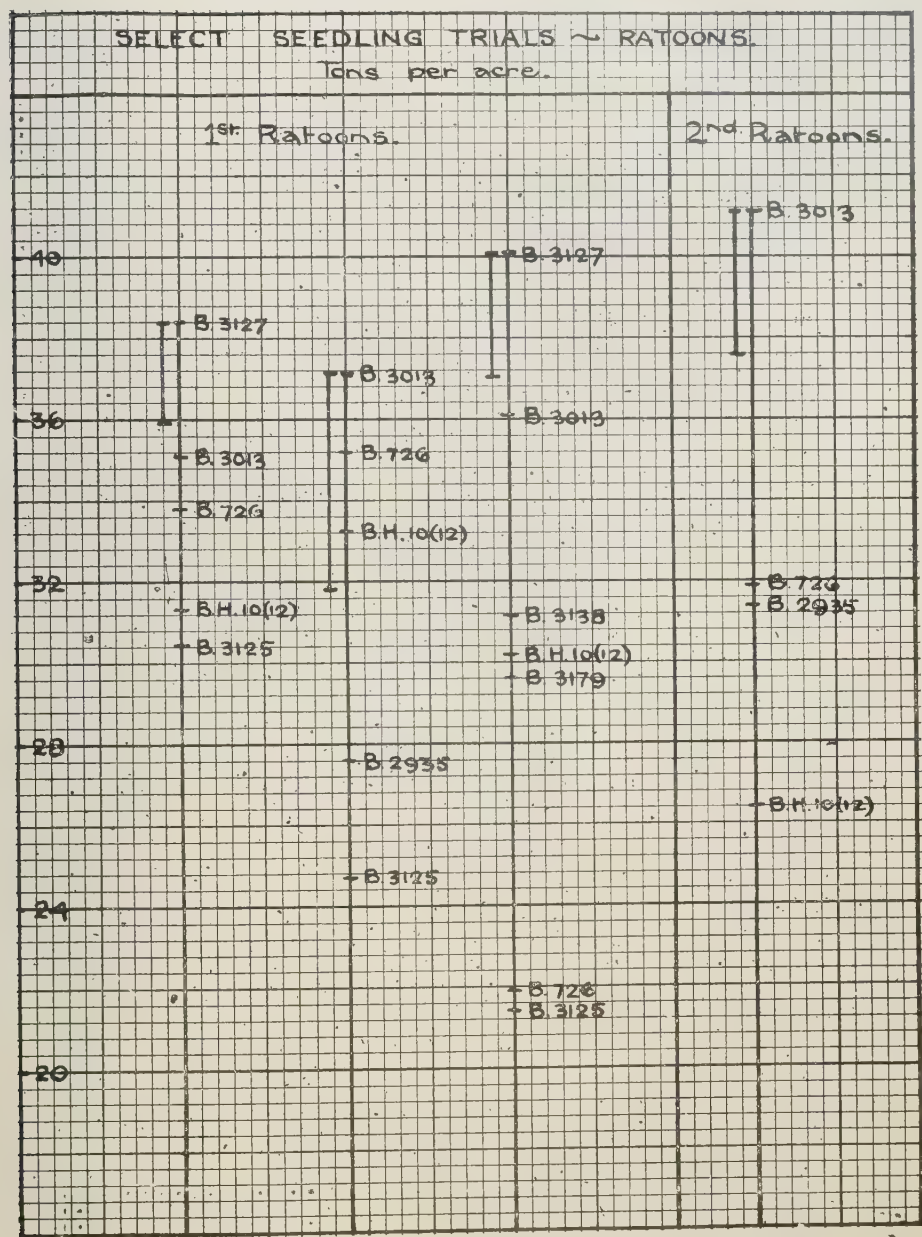
25.2.36

31.3.36

26.2.36

1.4.36

FIG V. CATEGORY D (Cont.)



COTTAGE.

GUINEA.

WAKEFIELD.

BOWMANSTON

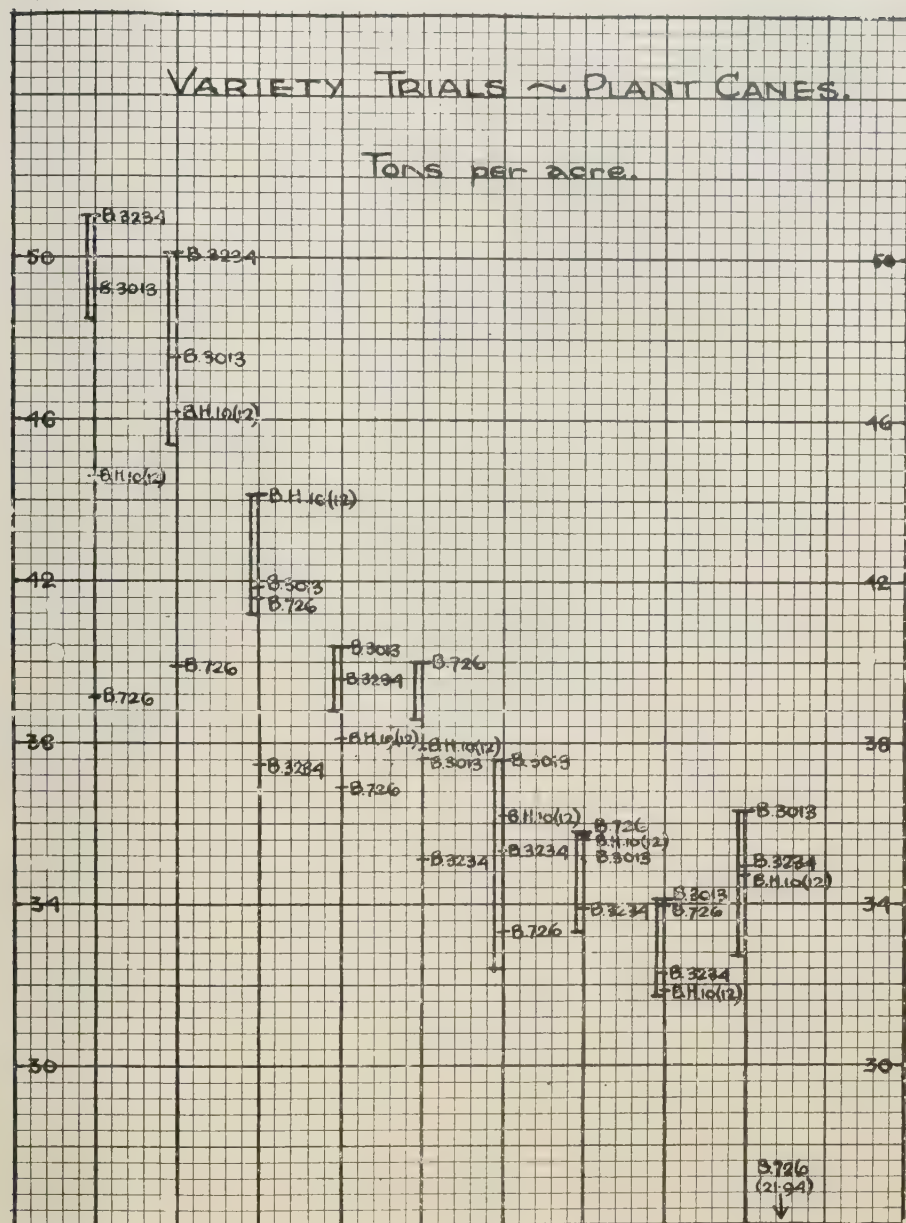
7.4.36

3.4.36

15.4.36.

17.4.36

FIG VI. CATEGORY D (Concl'd.)



B. SHORT NOTE ON SPECIAL INVESTIGATIONS.

Special investigations are described in detail from time to time in separate publications. An outline report of these undertaken during the season under review has recently been published elsewhere. (See Agric. Jour. Dept. Sci. & Agric., Vol. 5 No. 2., April, 1936).

These special investigations being carried out are :—

- (1) Maturity Experiments.
- (2) Growth Measurements.
- (3) Root System Investigations.
- (4) Gummy Disease Investigations.
- (5) Fuzz Storage Experiments.
- (6) Experiments with the Zeiss Hand Refractometer.

The following publications on these investigations have already been issued.

- (2) McIntosh, A. E. S. 1934. Sugar Cane Growth Measurements in Barbados. Agric. Jour., Dept. Sci. & Agric. B'dos. Vol. 3, No. 1, pp. 1-29.
- (3) Stevenson, G. C. 1935. Investigations into the Root Development of Sugar Cane in Barbados. (1) Root Development in
and
McIntosh, A. E. S. Several Varieties Under One Environment. B.W.I. Central Sugar Cane Breeding Station. Bull. No. 5.
- (4) McIntosh, A. E. S. 1935. Gummy Disease Investigations in Barbados.
and
Stevenson, G. C. Ibid. Bull. No. 8.
- do. 1936. Investigations into the Use of the Zeiss Hand Refractometer. (1) The Use of the Zeiss Hand Refractometer in the Early Stages of Sugar Cane Seedling Selection. Agric. Jour., Dept. Sci. & Agric. B'dos. Vol. V., No. 1, January.

An account of the fuzz storage experiments carried out in 1935 appears in a paper in this number of the Agricultural Journal.

It is anticipated that an account of the Root System Studies carried out during season 1935—36 will be published later in the year.

APPENDIX I.

Sugar Cane Breeding, Seedling Raising And Nursery Planting.
1935—36.

*Details of Crosses made, their Germinations
Numbers Potted, and Numbers Planted in Field Nursery.*

Cross	Group	No. Germina- tions.	No. Potted	No. Planted in Field Nursery
Ba.11569 x B.H.10(12)	Proven Cross (<i>Saccharum officinarum</i>)	1,667	933	730
" x S.C 12/4 ..	" "	6,148	972	850
" x B.603 ..	" "	1,004	436	430
" x Ba.8069 ..	" "	1,923	352	295
" x B.417 ..	" "	2,805	1,200	1,160
" x E.K. 28 ..	Semi-proven Crosses.	996	548	500
" x Q. 813 ..	(<i>Saccharum officinarum</i>)	443	269	240
" x Burke ..	" "	1,088	354	280
" x B.6835 ..	" "	3,299	1,400	1,260
" x D.625 ..	" "	667	284	220
" x B.694 ..	" "	1,511	460	380
" x B.693 ..	" "	3,742	605	560
" x Badila ..	" "	9,586	934	770
Bourbon x B.H.10(12)	" "	150	77	75
" x B.2935 ..	" "	25	24	20
" x B.6835 ..	" "	43	0	0
B.3013 x B.H.10(12)	" "	416	140	130
B.3138 x B.2935 ..	" "	287	188	170
B.3124 x B.2935 ..	" "	0	0	0
		35,800	9,176	8,070

Cross.	Group.	No. Germina- tions.	No. Potted.	No. Planted in Field Nursery.
	Experimental Crosses. Nobilisations (a) Chunnee (<i>Saccharum</i> <i>barberi</i>)			
B.3124 x Dacca ..	1st degree	0	0	0
Ba.11569 x " ..	" "	8	8	7
Hemja x B.H. 10(12) ..	" "	0	0	0
Hathooni x " ..	" "	0	0	0
Ba.11569 x P.O.J. 234 ..	2nd degree	48	43	40
Co. 213 x B.391 ..	3rd degree	12	10	10
B.3365 x B.603 ..	3rd degree	165	76	70
B.3355 x B.2935 ..	3rd degree	1	0	0
		234	137	127
	(b) <i>Saccharum</i> <i>Spontaneum</i> (i) N. Celebes form			
B.3322 x B.2935 ..	3rd degree	110	0	0
B.3352 x B.H. 10(12) ..	" "	55	32	30
		165	32	30
	(ii) Java form			
Syn. Kassoer x " ..	2nd degree	187	158	140
Kassoer x B.6835 ..	" "	260	240	230
P.O.J. 2364 x B.2935 ..	3rd degree	273	150	140
" x B.H. 10(12) ..	" "	60	32	30
" x S.C. 12/4 ..	" "	159	86	80
" x E. K. 28 ..	" "	4	0	0
M.D. 47 x P.O.J. 2878 ..	" "	4	0	0
B.3215 x " ..	3rd/4th degree	80	67	50
Ba.11569 x M.B. 3 ..	4th degree	1	0	0
P.O.J. 2722 x B.H. 10(12) ..	" "	17	0	0
Carried forward ..		1,045	733	670

Cross.	Group	No. Germina- tions.	No. Potted.	No. Planted in Field Nursery.
Brought forward ..		1,045	733	670
B. (30) L6 x B.H. 10(12)	4th degree	472	285	250
Ba.11569 x B.3384 ..	" "	42	0	0
B.3353 x B.H. 10(12) ..	" "	105	73	65
M.E. 72 x B. 2935 ..	" "	76	40	38
M.D. 47 x S.C. 12/4 ..	" "	71	52	50
P.O.J. 2725 x " ..	" "	521	175	160
M.I. 20 x " ..	" "	239	116	100
M.B. 96 x B.2935 ..	" "	261	171	150
M.B. 148 x " ..	" "	76	48	45
B.3285 x B.H. 10(12) ..	" "	208	91	80
B.3286 x B.H. 10(12) ..	" "	241	143	120
B.3274 x S.C. 12/4 ..	" "	258	159	140
B.3282 x B.H. 10(12) ..	" "	13	0	0
B.3392 x B.603 ..	" "	76	55	50
B.3390 x B.H. 10(12) ..	" "	7	0	0
B.376 x P.O.J. 2878 ..	" "	2	0	0
B.34151 x B.2935 ..	" "	4	0	0
B.3354 x B.H. 10(12) ..	" "	83	53	50
Ba.11569 x B.34161 ..	5th degree	232	136	110
" x B.3317 ..	" "	697	260	240
B.34105 x B.H. 10(12) ..	" "	34	0	0
B.3215 x " ..	" "	6,556	712	670
B.3335 x B.2935 ..	" "	1,587	180	65
B.3013 x B.34100 ..	" "	18	0	0
B.3368 x B.2935 ..	" "	239	134	120
B.3238 x " ..	" "	292	146	125
B.3013 x B.34130 ..	" "	461	274	250
Carried forward ..		13,916	4,036	3,548

Cross.	Group.	No. Germina- tions.	No. Potted.	No. Planted in Field Nursery.
Brought forward ..		13,916	4,036	3,548
B. 3013 x B. 34134 ..	5th degree	141	78	67
B. 34101 x B. 2935 ..	" "	64	39	37
B. 34102 x B. 2935 ..	" "	3,769	273	260
B. 3348 x B. 2935 ..	" "	0	0	0
		17,890	4,426	3,912
B. 3215 x <i>Saccharum</i> <i>Spontaneum</i> ..	(iii) Indian form 4th glagah x <i>Saccharum</i> <i>Spontaneum</i>	6,996	515	500
	(c) <i>Saccharum</i> <i>sinense</i>			
Uba x B. 603 ..	1st degree	12	11	10
" x B. 6835 ..	1st degree	71	71	70
" x P.O.J. 2878 ..	<i>Saccharum</i> <i>sinense</i> x 3rd glagah	36	33	30
		119	115	110
	(d) Mixed Derivation			
Toledo x P.O.J. 2714 ..		3	0	0
P.O.J. 2725 x B. 3364 ..		1,855	369	320
" x B. 34107 ..		1,941	548	490
Ba. 11569 x B. 34116 ..		183	125	120
Co. 213 x P.O.J. 2878 ..		9	8	7
Co. 213 x B. 3334 ..		10	6	6
M.D. 47 x Co. 281 ..		299	194	180
" x P.O.J. 234 ..		597	486	430
P.O.J. 2725 x B. 3358 ..		637	300	280
P.O.J. 213 x P.O.J. 2878 ..		62	58	55
Ba. 11569 x Co. 290 ..		15	10	10
		5,611	2,104	1,898
Grand Totals ..		66,815	16,505	14,647

APPENDIX II.

SUGAR CANE. FIRST YEAR SEEDLINGS — B.37' SERIES.

List of Crosses and Their Numbers of Seedlings Planted in the Field Nursery (April, 1935) and The First Year Seedling Trial (October and November, 1935).

Group	Cross		No. in Field Nursery	No. Planted in First Year Seedling Trial
Proven Crosses (<i>Saccharum officinarum</i>)	Ba. 11569	x B.H.10(12)	1,700	1,060
	"	x B.603	1,400	921
	"	x S.C.12/4	1,200	679
	"	x B.417	1,200	758
	"	x Ba.8069	700	480
			6,200	3,898
Semi-Proven Crosses (<i>Saccharum officinarum</i>)	"	x Burke	250	158
	"	x D.625	250	159
	"	x B.6450	250	130
	"	x B.6835	250	197
	"	x Q.813	250	189
	"	x Sealy Seedling	250	80
	Bourbon	x B.H.10(12)	250	170
			1,750	1,083
Experimental Crosses (i) Noble Crosses (<i>Saccharum officinarum</i>)	B.376	x B.H.10(12)	60	27
	"	x B.2935	60	42
	"	x B.6835	60	45
			180	114

Group.	Cross.				No. in Field Nursery.	No. Planted in First Year Seedling Trial.
(ii) Nobilisations						
(a) <i>Saccharum barberi</i>						
2nd degree	 P.O.J. 213	x	B. 2935	....	45	11
" "	 Ba. 11569	x	P.O.J. 234	....	130	79
3rd degree	 Co. 213	x	Burke	....	18	10
" "	 B. 3365	x	B. 603	....	120	120
					313	220
(b) <i>Saccharum sinense</i>						
1st degree	 Uba	x	B.H.10(12)	....	110	41
	 Uba	x	B. 2935	....	50	8
					160	44
(c) <i>Saccharum Spontaneum</i>						
i. N. Celebes form						
2nd degree	 Toledo	x	B.H.10(12)	....	120	30
3rd degree	 B. 3322	x	B.2935	....	70	21
" "	 B.3324	x	B.H.10(12)	....	45	22
					235	73
ii. Indian form						
1st degree	 Ba. 11569	x	<i>Saccharum Spontaneum</i> ...		230	39
iii. Java form						
2nd degree	 Kassoer	x	B.H.10(12)	....	25	7
" "	 Syn. Kassoer	x	B.H.10(12)	....	200	71
3rd degree	 P.O.J. 2364	x	B.H.10(12)	....	170	117
" "	 P.O.J. 2364	x	S.C. 12/4	....	180	123
4th degree	 P.O.J. 2725	x	S.C. 12/4	....	250	147
" "	 P.O.J. 2722	x	B.H.10(12)	....	70	46
" "	 P.O.J. 2878	x	B. 2935	....	120	24
" "	 B. 376	x	P.O.J. 2878	....	120	75
" "	 Ba. 11569	x	MB3	....	70	36
Carried forward					1,435	685

Group.	Cross.				No. in Field Nursery.	No. Planted in First Year Seedling Trial.
Brought forward					1,435	685
iii. Java form						
4th degree		Ba. 11569	x B. 3384	....	70	34
" "		Ba. 11569	x B. 3337	....	70	49
" "		B. 3326	x S.C. 12/4	....	70	59
" "		M. D. 41	x B.H.10(12)	....	70	45
" "		B.3152	x B.2935	....	70	27
" "		MI 20	x S.C. 12/4	....	70	55
" "		ME 72	x B. 2935	....	70	57
" "		MD 47	x S.C. 12/4	....	120	109
" "		B.3382	x B.H.10(12)	....	70	59
" "		B. 3392	x B. 603	....	70	40
5th degree		B. 3172	x B. 2935	....	120	75
" "		B. 3320	x B. 603	....	70	57
" "		B. 3215	x B. 2935	....	120	97
" "		B. 3238	x B. 603	....	70	54
" "		B. 3335	x Burke	....	70	34
" "		Ba. 11569	x B. 3318	....	70	40
" "		Ba. 11569	x B. 3334	....	70	55
" "		B. 3321	x B.H.10(12)	....	70	46
					2,845	1,677
Mixed Derivations		Uba	x P.O.J. 2378	....	45	24
		Ba. 11569	x B. 3364	....	70	36
		Co. 213	x P.O.J. 2878	....	180	93
		Ba. 11569	x Co. 281	....	250	137
					545	290
Grand Totals					12,228	7,399